REMARKS/ARGUMENTS

Preliminary matters

Applicant has recently noted the email dated 28 April 2004 that was sent by the Examiner to Kia Silverbrook. Applicant is appreciative of the Examiner's attempts to progress the case through exchange of email. It is embarrassing that the email was inadvertently overlooked at the time and has only recently come to light.

It would appear from the Office Action that the Examiner may consider the comments of 28 April 2004 to be rendered moot by Helterline. However, Applicant notes that Helterline at column 3 line 13 only refers to preventing installation of non-compatible replaceable printing components. This is different from the problem of preventing compatible, but unauthorized, components from operating. With this response Applicant proposes new claim 31 that is limited to the case where the authentication step prevents operation of unauthorized ink cartridges, as suggested by the Examiner in the email of 28 April.

In the Claims:

Claims 1-31 are pending in this application. The Examiner has rejected claims 1-30. By this amendment claims 1, 10, 12, 24 and 29 are amended. New claim 31 is proposed. No new matter has been added.

Claim Objections

Applicant notes the objection regarding claim 24 and requests amendment accordingly.

Claim Rejections – 35 USC §102

Examiner has rejected claims 12-15 under 35 U.S.C. 102(e) as being anticipated by Muira (US patent 6659584) on the basis that Muira discloses a controller 24 for a printer module having each of the elements claimed in claims 12-15. In particular, Examiner equates the image access unit with the Discharge Controller 122. Applicant submits that the Examiner is incorrect in making such a correlation. The instant specification states clearly on page 15 from line 15 that, "The image is written to ImageRam by the Image Access Unit 182, and read by both the Image Access Unit 182 and the Print Generator Unit 193 of the printhead interface 180. The CPU does not have direct random access to this image memory". The specification continues, "It must access the image pixels via Image Access Unit 182".

However, Muira states in column 8 at line 36 that, "The CPU 25 sequentially transfers image data, sent from the external computer 56 and temporarily stored in the RAM 27 or prepared in the ROM 26 in advance, to the discharge controller 122, in accordance with the print operation control of the printer".

Thus it is clear from comparison of these descriptions that the discharge controller 122 cannot be correlated with the image access unit 182. Under Muira the CPU accesses the image data and transfers it to the discharge controller. In the present invention the CPU cannot access the image data. In the present invention the image data in ImageRAM is

accessed by the print generator unit 193 in the printhead interface 180, whereas in Muira the CPU loads the image data directly to the discharge controller which controls discharge of ink from the print head.

Applicant assets that the discharge controller 122 of Muira can only be compared to the Memjet Interface 191, shown in FIG 18. As stated on page 18 of the instant specification from line 2, "The Memjet Interface (MJI) 191 connects the controller 170 to the Memjet printhead 186, providing both data and appropriate signals to control the nozzle loading and firing sequences during a print". Compare this to the paragraph at the bottom of column 8 of Muira which states, "The discharge controller 122 generates a head control signal (122c) consisting of four types of signals necessary for operating the printhead 5 ....".

The benefit of this novel architecture is made clear on page 13 on the instant application at line 14, "Since all of the image processing is performed by dedicated hardware, the CPU does not have to process pixels. As a result, the CPU can be extremely simple".

Applicant concedes that claim 12 may not adequately define the hardware elements. Applicant therefore proposes amendment of claim 12 to include separate reference to the print generator and interface unit within the printhead interface. This amendment highlights that the discharge controller of Muira may correlate to the interface unit but cannot correlate to the image access unit.

Applicant also requests corresponding amendments to claim 29.

Claim Rejections – 35 USC §103

As discussed above, Muira does not disclose nor suggest an image access unit. Applicant asserts that Examiner's correlation of the discharge controller of Muira with the image access unit of the present invention is unsustainable. The discharge controller can more correctly be correlated with the Memjet interface 191 shown in FIG 18.

Applicant concedes that the wording of claim 1 may not adequately highlight the significantly different methodology inherent in the instant claims. As discussed above, the CPU never accesses the ImageRam and therefore does not need to have image processing capacity. The image processing is performed by dedicated hardware units. Therefore, the step of storing the image in ImageRAM is performed by the Image Access Unit and the step of retrieving the image from ImageRAM for printing is performed by the printhead interface. The printhead interface performs the functions of retrieving the image, transforming the image and transferring the image to the printhead in a synchronous manner.

Applicant requests amendment of claim 1 to highlight that the step of storing the image is different from the step of retrieving and printing the image, and that unlike Muira, the CPU does not have a processing role in this method.

Furthermore, Examiner has indicated column 6 lines 10-22 of Muira as disclosing the step of "sensing the presence of printable media in the printer module". Applicant finds no such language in this section of Muira. The indicated lines describe the process of moving the paper and print carriage, but do not mention any sensing device.

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Regarding claim 2, Examiner asserts that the method is disclosed by Muira. However Muira states in column 8 from line 36, "The CPU 25 sequentially transfers image data, sent from the external computer 56 and temporarily stored in the RAM 27 or prepared in the ROM 26 in advance, to the discharge controller 122, ...". Therefore it is clear that Muira does not transfer the image to the RAM 27 via the discharge controller 122. Rather, the CPU transfers the image from the RAM 27 to the discharge controller 122. This is because the discharge controller 122 of Muira is the final stage hardware that loads the image to the printhead, it is not equivalent to the Image Access Unit 182 and hence does not perform that same method steps.

Examiner has rejected claim 10 with "arguments analogous to those presented for claim 1". Applicant submits that claim 10 is focused on the synchronous image retrieval, transformation and transferal aspect of the invention. Applicant requests amendment of claim 1 to further highlight the synchronous nature of the transfer of image data from the ImageRAM 181 to the print generator unit 193, via the Memjet Interface 191 to the printhead 186. Printing occurs synchronously with the movement of the printable media. Applicant notes the Examiner's comments in relation to claims 24 and 25, however Applicant argues that these rejections are rendered moot in view of the discharge controller of Miura being non-analogous with the Image Access Unit 182 or Print Generator Unit 193 of the instant application. In any event, Applicant has highlighted differences from Silverbrook in the previous response.

Applicant has noted the Examiner's comments in regards the relevance of the prior art and has amended the claims accordingly. It is therefore submitted that the application is now in condition for allowance. Reconsideration of the application is courteously solicited.

Very respectfully,

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